

## CLAIMS:

1. An interpolation method for a video signal, in which at least two line-memories are used, the line-memories being applied with an input digital video signal, and in which the line-memories are subjected to controls on their writing and reading so that a video signal subjected to vertical interpolation is generated from reading outputs of the line-memories, wherein

for the controls on writing and reading, any of the line-memories are circularly selected and a sample sequence of the input digital video signal is sequentially written into the selected line-memory at a sample rate of the sample sequence, and at the same time the samples of the written sequence are sequentially read out at a substantially constant rate which is in accordance with a desired vertical expansion ratio and which is higher than the sample rate, wherein, when one of the line-memories is in a writing operation, the other one of the line-memories is subjected to a repeatedly reading control.

2. A method according to Claim 1, characterized in that the line-memories are FIFO type memories having a dual port.

3. A method according to Claim 1 or 2, characterized in that the constant rate corresponds to a dot-frequency of image to be displayed.

4. A method according to Claim 1, 2, or 3, characterized in that a line-memory to be in a reading mode is designated based on a synchronization signal having a frequency more than by a factor of the vertical expansion ratio as high as a horizontal synchronization frequency of the input digital video signal.

5. An interpolation method for a video signal, in which at least one line-memory is used, the line-memory being applied with an input digital video signal, and in which the line-memory is subjected to controlling including writing and reading thereof so that a video signal subjected to horizontal interpolation is generated from a reading-output of the line-memory, wherein

the signal subjected to horizontal interpolation is applied to a serial input of a shift-register for applying pixel information signals associated respectively with column electrodes each extending in a vertical direction of a display area in displaying means,

a shift-clock signal is applied to the shift-register, the shift-clock signal having

5 a predetermined frequency for shifting data latched in the shift-register,  
for the controlling:

a sequence of samples of the input digital video signal is written into the line-memory while the samples of the written sequence are sequentially read out in response to a read-clock signal; and

10 a frequency of the read-clock signal is set to have a constant frequency which is lower than the frequency of the shift-clock signal and which is in accordance with a desired horizontal expansion ratio.

6. A method according to Claim 5, characterized in that the read-clock signal is  
15 generated based on the shift-clock signal.

7. A method according to Claim 5 or 6, characterized in that within one horizontal scanning period, one line of samples stored in the line-memory are read out at uniform intervals.

20 8. A display device with a function of interpolating for a video signal, in which at least two line-memories are used, the line-memories being applied with an input digital video signal, and in which the line-memories are subjected to controls on their writing and reading so that a video signal subjected to a vertical interpolation is generated from reading-outputs  
25 of the line-memories, wherein the device comprises:

control means for performing such a control that in the controls on writing and reading, any of the line-memories are circularly selected and a sequence of samples of the input digital video signal are sequentially written into the selected line-memory at a sample rate of the samples, and at the same time the samples of the written sequence are sequentially read out at a substantially constant rate which is in accordance with a desired vertical expansion ratio and which is higher than the sample rate, wherein, when one of the line-memories is in a writing operation, the other one of the line-memories is subjected to a repeatedly reading control.

9. A display device with a function of interpolating for a video signal, comprising at least one line-memory being applied with an input digital video signal, wherein the line-memory is subjected to controlling including writing and reading thereof so that a video signal subjected to horizontal interpolation is generated from reading-outputs of the  
5 line-memories, which further comprises:

means for applying the signal subjected to horizontal interpolation to a serial input of a shift-register for applying pixel information signals associated respectively with column electrodes each extending in a vertical direction of a display area in displaying means;

10 means for applying a shift-clock signal to the shift-register, the shift-clock signal having a predetermined frequency for shifting data latched in the shift-register; and  
means for performing writing a sequence of samples of the input digital video signal into the line-memory while sequentially reading out the samples of the written sequence in response to a read-clock signal, a frequency of the read-clock signal being set to  
15 have a constant frequency which is lower than the frequency of the shift-clock signal and which is in accordance with a desired horizontal expansion ratio.